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PACK TRANSPORTATION FOR THE ARMY

A LECTURE

DELIVERED BEFORE THE OFFICERS OF THE
QUARTERMASTER RESERVE CORPS AT
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By
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PACK TRANSPORTATION FOR THE ARMY.

COL. BRAINARD'S INTRODUCTION.

Gentlemen, you have a rare treat in store for you to-night. We have in the United States a man who perhaps knows more about pack transportation than any other man in the world. He has had a unique career—a wonderful career—and I take pleasure in introducing to you Mr. W. H. Daly.

LECTURE BY MR. W. H. DALY.

Col. Brainard, I thank you for the kindly mention of this old man.

Perhaps I may say that men grown gray, especially after 50 years of their life with the Army, are prone to dwell in memories of the past, and such kindly mention touches the heart of this old man.

Officers of the Reserve Corps:

No doubt you may wonder what I have to say that may interest you, and, inasmuch as I have sat with you young men and listened to lectures in this hall for your benefit, I may say with all kindly intent that you gentlemen have shown a close attention and lively appreciation of the various subjects pertaining to the office and divergent branches of the Quartermaster Corps, and especially a kindly expression and sincere appreciation of the continued presence and interesting remarks of the Quartermaster General, who, with kindly thought for your future efficiency, has brought to his aid officers of certain branches of the corps; as well as a selection of our visiting allied officers, to define and understand such duties as you may be called upon to perform, with credit to yourselves and an honor to the Quartermaster Corps.

Before taking up the subject of pack transportation I wish to recall an incident or two of frontier days that, perhaps, may measure this old man.

In 1874 there lived in the Southwest a family by the name of Greer, who before the Civil War had emigrated from Arkansas to Texas, and in explaining the necessity for the move, remarked that the neighbors were getting too close for him, and "By golly," he would say, "they are crowding me out now."

At this time his nearest neighbor was 25 miles east and 50 west of his cattle ranch. During the year in question the incoming settlers held a meeting to define a town site and named it Albany, as the county seat of Shackelford County, and in honor of the oldest resident, elected the old man sheriff.

The old man, by the way, had formed a habit of swearing, but with harmless intent.

When he arrived home from the meeting, he stood in the doorway and remarked to his wife, who was tall and bony and large of frame, "Old woman, what in the h—l do you reckon them thar folks want to do with me, down thar?"

"Why, old man, I declar I just don't know."

"Well, I'll be gol darned if they don't want to elect me sheriff down thar."

"Why, old man, you ain't go no larning."

"I don't give a gol darn, I reckon I've got as much sense as them that have larning."

Now, I do not wish to assume that I measure up to the old man's standard.

But the following incident that I happened to witness is, as we say out West, more to the purpose. While traveling by stage between the posts of Forts Griffin and Concho, Tex., a distance of about 150 miles, the stage and passengers stopped over night at the old man's ranch.

During the evening the youngest son, Tom, of whom the mother was especially fond, had formed a habit of making house pets out of young wild cats, and sallied out, shotgun in hand, to kill a few quail for supper. Near by, he discovered a wild cat up a tree. Tom blazed away and wounded the cat, and wishing to secure the animal alive, climbed the tree and in reaching for the cat it made a pass at his face. Tom let go his hold on the tree and fell to the ground.

The mother, hearing the shot, stepped to the door and witnessing the fall of her boy, called to the old man, who was sitting by a good old-fashioned log fire, saying:

"Old man, Tom has fallen outen that tree out thar."

"I don't give a gol darn, I reckon the dom fool will larn."

"Old man, Tom isn't a rising yet."

"I don't care a dom, I reckon he'll rise when Gabriel blows his horn."

"Why, old man, you just oughten to talk thataway. Well, now, I'll just declar, if Tom ain't a climbing that tree out thar again."

"Old woman, come in outen that door. Thar ain't cats enough out thar to kill Tom."

So that, like Tom, it may be said there wasn't "cats enough out thar" to kill this old man.

Gentlemen, in order to keep the memory of past events within due bounds, I will give you a slight résumé of the travels of a packer with the old Army, and, by the way, that was not a picnic, nor yet do I mean that this old man needs the aid of an iron band to keep his head from bursting, but simply as an illustration of the travels of the Old Guard that for 30 years following the Civil War fought the Indian and the outlaw.

In my travels as a packer with the old Army I may say that I have been to the headwaters of the Missouri and Columbia Rivers, in what may truthfully be called the crown of land as well as the roughest section of the Continental Divide or Rocky Mountains, and from the Gulf of Mexico or the mouth of the Rio Grande to its headwaters in the San Juan Mountains of Colorado, and with a pack train I have crossed and recrossed the Rocky Mountains from British Columbia to Mexico, and the Sierra Madres from Sonora to Chihuahua, Mexico. I have crossed the Yuma and Mojave Deserts, the famous Death Valley, and Soda Lake, the Santa Fe and Oregon trails, and the Grand Canyon of the Colorado, and in later years, Cuba, the Philippine Islands, and the Canal Zone.

During the first 30 years of my service as a packer with the old Army, I have been three days and three nights without water and four days without anything to eat. I have eaten horse and mule meat when about all that covered the bones was the hide, as well as dog and rat meat.

I have slept in the open with three blankets, when the thermometer failed to register how cold it was, and, by way of contrast, I have slept without covering in Sonora when it registered 100° at midnight, and I have met the Indian and the outlaw, and we had "some few" of these gents in the early days. I guess I had better stop before I get into deep water.

Apropos of water: In the years of 1880, 1881, and 1882, during the Victoria campaign against the Warm Spring Apaches, in southwest New Mexico, I have drunk of water from a gypsum

pond, with a yellow scum that when a camp kettle of this water was boiled for coffee we had about 3 inches of coffee water and the remainder like mush, which could have been eaten with a spoon, and let me add, a sure kill or cure for any person troubled with the diarrhea.

During the years from 1887 to 1890 I have drunk from a spring at Cheyenne Pass, Wyo., whose banks were bordered by watercress and the waters biting cold and refreshing, that was declared to be unfit for drink.

During the Garza campaign on the lower Rio Grande, Tex., 1891 to 1894, G Troop of the old Third Horse, was encamped at a pool of water that sported a green scum, from the contributions of cattle, sheep, and goats, with horns of a dead steer emerging from near the bank, and no ill effects were reported from its use. Col. Jessie McL. Carter, now with the Bureau of Military Affairs, will vouch for this statement.

But I will not say so much for the waters of Cuba, the Philippines, and Canal Zone, where poisonous vegetation makes it injurious for the white man's use unless it is previously boiled.

Gentlemen, I have before me a few short sketches of our Indian wars, as well as a few items on pack transportation, that I trust may interest you and give you an idea of the service of a pack train as an adjunct to the mobility of mounted troops that before the advent of the railroads was the only means of rapid supply on our western frontier.

SHORT SKETCHES OF OUR INDIAN WARS.

By way of introduction, I may mention that when a boy at the close of the Civil War, I first learned the art of throwing the Diamond hitch while employed as a packer in the mining camps of British Columbia and Idaho, and in the years following 1867 I have been associated with the "Old Army" as a packer on our western frontier in numerous campaigns against the many tribes of Indians that roamed between the Missouri River and the Pacific Ocean, known in those days as the Great American Desert.

Due to the achievements of that little army, in which the packer and the pack mule have borne their part, that vast territory is to-day organized into States and enjoying the fruits of civilization under the banner of Old Glory, and the sheltering wings of the Great American Eagle.

To give you gentlemen an idea of what was known as the American Desert, it may be stated that from St. Louis to Denver, a distance of about 900 miles as the crow flies, was then an open prairie without a fence, over which the buffalo roamed in countless thousands, as well as from Denver to California and the British line, when the only communication by mail was by "Pony" express and the Concord coach, when fathers and mothers, in wagons of the prairie-schooner type, crossed the Sante Fe and Oregon trails and braved the danger of desert Indians in search of homes for their children, and when rounded up by encircling Indians and seemingly when all hope was lost to hear the gladsome sound of the bugle and yell of the American cavalryman, that like the charge of the light brigade swept across the desert and prairie in a mad rush to their rescue.

When in 1867 the old First Horse and Twenty-third Infantry, under Maj. Hunt and Gen. Crook, then a lieutenant colonel, fought the Bannocks and Shoshones in Idaho and Oregon.

Where farther south the old Fourth, Ninth, and Tenth Horse, and Eleventh Infantry, under Cols. McKenzie, Hatch, Dividson, and Buell, fought the Kickapoos, Kiowas, and Comanches in Texas from the Staked Plains to within a few miles of San Antonio, where they waxed rich stealing horses and mules from the embryo settlements, and boldly attacked stage coaches, Government and citizen wagon trains, and burned the unfortunate teamsters and wagon masters at the wheels, whilst they danced around in hellish glee, firing arrows and throwing firebrands at their heads and bodies, and drove the captured stock and unfortunate women and children to their camps on the Staked Plains.

When Gen. Sherman, en route east from San Antonio, by way of Dodge City, Kans., where the Atchison, Topeka & Santa Fe Railroad was building west in 1871, had a narrow escape in being waylaid or murdered by the Kiowas, under Satanta, Satank, and Adocette, as the day after his arrival at Fort Richardson or Jacksboro, Tex., they waylaid the Long Bros. wagon train while crossing Salt Creek prairie, killed five of the teamsters, and burned the eldest of the brothers at the wagon wheel, and drove the captured stock to the Fort Sill Reservation.

And later in Arizona, where the old Third and Fifth Horse, and Twelfth and Twenty-third Infantries, fought the wild and blood-thirsty Apache Yumas, Mojaves, Pimas, and Tontos, who

attacked emigrant travel in crossing the Yuma and Mojave Deserts, where many an unfortunate man left his bones to whiten the desert sands, as well as the famous Death Valley and Soda Lake.

Days when the old refrain among the soldier boys went the rounds, "I'll eat when I'm hungry, and drink when I'm dry, and if the Apaches don't kill me, I'll live till I die." Days when at times the boys had to live on starved horse and mule meat and did not elevate the nose at dog and rat meat, when they trudged shoeless, over rocks and cactus, and ankle deep through mud, without the prospect of a supper, when embalmed beef of Spanish War fame would have been a Delmonico feast. Days when the boys were issued hard-tack that would knock a mule over a precipice; when to prepare it for supper it was soaked in hot water and seasoned with salt pork that sported 6 inches of fat, with green whiskers on it, that for name on the troopers' menu card would best be written in hieroglyphics.

Days when on the trail of the Apaches, with 120° in the sun and with swollen tongue, you screened the eyes to note in the far-off distance the appearance of water that proved to be a mirage, and were content to climb for water and dig for wood, and were finally subjugated by the American soldier.

And again, farther north, where the old First, Second, Third, Fifth, and Seventh Horse, the Fourth, Fifth, Thirteenth, and Fourteenth Infantry, and officers of the Twenty-third Mounted Rifles, fought the warlike Sioux, Cheyenne, and Arapahoe in what is now the States of Wyoming, Montana, and the Dakotas, where during the battle of the Rosebud Gen. Crook, with about 1,200 men, fought over 5,000 of the allied tribes, and had all he could do to save the command from annihilation, and where, eight days later, they entrapped the unfortunate Custer on the banks and bluffs of the Little Big Horn River and wiped out five troops of his regiment, when Maj. Reno and Capts. Benteen and McDougal with seven companies, the latter officer in charge of the pack train and ammunition supply, lost many men in killed and wounded and narrowly escaped meeting the same fate, where two weeks later I, with others of Crook's command, viewed the battle field, the bodies of the dead horses marking the scene of the fight.

And again on the meeting of Gen. Terry's command and separation at the confluence of the Tongue and Yellowstone, the memorable march of Crook's command from the head of Heart River to Deadwood City, when they lived on starved and worn-

out horse and mule meat and were pelted by rain for 23 days, tramping barefooted through mud ankle deep, while following the trail of the escaping Sioux and Cheyenne, that led toward the mining camp of Deadwood City, where the citizens turned out and met them with a bunch of 50 fat beef cattle and commissary supplies in plenty, as well as grain and hay for the stock, and gave the command the freedom of the city, with firing of anvils in lieu of cannon, and I may add the boys done justice to the occasion.

When McKenzie, of the Fourth Horse, and other contingents of the service, in the gray dawn of November 25, 1876, rushed like an avalanche on the Cheyennes under Dull Knife on the banks of Willow Creek and almost annihilated the band, when to provide water for horse and man ice had to be cut 2 feet deep, and horses and mules perished, frozen at the picket line.

And the following year the memorable Nez Perce campaign that was fought by the forces of Gens. Howard, Sturgis, Gibbon, and Miles, when Howard's command fought the Battle of the South Fork of the Clearwater, Idaho, July 11 and 12, and the escaping Nez Perces crossed the Bitter Root Range at Lolo Pass, and entered Montana Territory, and were met by the Seventh Infantry under Gen. Gibbon, who fought the Battle of the Big Hole Basin, where many men were killed and wounded, Gen. Gibbon among the latter, and I may add the father of the present Capt. C. P. Daly, August 9 and 10.

Escaping from Gibbon's command, they crossed the Rocky Mountains at Lemhi Pass, and again entered Idaho Territory, and were met by troops of the First and Second Horse under Maj. Sanford and Capt. Norwood, and a fight ensued known as the fight of Camas Meadows, August 20; escaping from Sanford, they again crossed the Rockies at Henry Lake, and again entered Montana Territory, and crossing the Fire Hole, a branch of the Madison, they entered Yellowstone Park, Wyo. Thence striking the headwaters of Clarkes Fork of the Yellowstone, and down the latter, they were met by Sturgis with six troops of the Seventh Horse at the mouth of Canon Creek, on the opposite bank of the Yellowstone, and engaged the Nez Percés; escaping from Sturgis on their route north for Canadian territory, they crossed the Musselshell and striking the headwaters of the Judith-Missouri at Cow Island they crossed the latter, where they engaged a detachment of 12 men under Sergt. Molchert, who was guarding supplies for the troops on the

Yellowstone, and endeavoring to dislodge him from his entrenchment they lost a day that was fatal to them, as Miles was hastening from his camp at the mouth of Tongue River to head them off, having with him the Fifth Infantry mounted and troops of the Second and Seventh Horse, and were overtaken at the Bear Paw Mountain and a battle ensued, resulting in their surrender to Gens. Howard and Miles, October 4, 1877.

Gen. Howard in the closing portion of his letter (General Field Orders No. 3, Report of the Secretary of War, p. 613) says in part:

From Kamiah (that is, from the southeast corner of the Nez Perces Reservation) to Henry Lake, at which point the Cavalry and Infantry arrived together, the command was marched continuously, without a day's halt, 26 days, making an average of 19.3 miles a day, baggage carried generally by pack trains, the Indian trail from Kamiah to the Bitter Root Valley being impassable for wagons.

The command suffered often for the want of shoes, overcoats, and underclothing during the march, and the difficulty of procuring supplies in Montana, etc.

Again, under known interpretation of law, our campaign against hostile Indians is not recognized as war, yet, as it has been a severer tax upon the energies of officers and men than any period of the same length of our late Civil War, surely some method must be found to encourage and properly reward such gallantry and services, hardly ever excelled.

Other campaigns against hostile tribes were the Mescalero and War Spring Apaches in New Mexico.

The Chiricahua Apaches in Arizona, that extended into the States of Chihuahua and Sonora, Mexico, known as the Geronimo campaign, that lasted from May 17, 1885, to September 8, 1886, under Gens. Crook and Miles, requiring all the available forces of the United States to wind up the trouble.

The last campaign of note was at Pine Ridge, S. Dak., against the Brule and Ogallala Sioux in the winter of 1890 and 1891, conducted by Gens. John R. Brooke and Miles, that required the services of 45 troops of Cavalry, 54 companies of Infantry, Battery E of the First Field Artillery, and Light Battery F, Fourth Artillery, to settle that trouble.

During this period Sitting Bull was killed at his village on Grand River, and Big Foot at Wounded Knee, in which many officers and men and Indians were killed and wounded, December 29, 1890.

It has been said by some writers that the Rocky Mountain men and not the American Army have taught the Indian respect for the firearms of the white man to defend himself, and while all meed of praise is due many of these brave and hardy men who in their search for beaver meadows sought the headwaters of the mighty Missouri and the Columbia, yet all they have left to civilization is their half-breed children and their vices; irksome of restraint, their deeds were marked with a dare-devil courage and brutal savagery that vied with their red-skin brothers.

At no time did the voice of nature appeal to him; he removed himself far from civilization to enjoy the lounging ease of camp life and the lounging and license of Indian villages.

Furtive in glance, on the approach of a white brother, the lids would narrow the vision, with the searching gaze of a venomous nature; sparing in speech, whether in the open or in the tepee, he practiced the sign language, and vied with the Indians that adopted him in the length of his hair, and the nakedness of attire.

In this condition he would return to the ragged edge of civilization, dispose of his pelts, and with the proceeds indulge in a brutal orgy in the dance halls and gambling dens, and when fleeced, was content to return to his squaw and his half-breed children.

What a parody to claim that such men, and not the American Army, fought the Indian and the outlaw in the reclamation of the American desert, and I might truthfully add that to adequately portray the deeds of heroism, trials, hardships, and suffering of that little Army would require the pen of a Conan Doyle, a Jules Verne, or a Sienkewitz.

PACK TRANSPORTATION.

The inventive genius of man has developed the use of the wheel in its application to steam, gasoline, and electric power, and to facilitate travel by such means, we build railroads and roadways, but in mountainous sections not approachable for wheel transportation we employ the animal burden.

This we term pack transportation, and by the average man outside of the Army is not well understood. No doubt you have seen pictures of camels in caravans, loaded with commerce, crossing the plains and deserts of Asiatic countries, each animal attended by a caravaner, and usually seated on top of the burden, directing the travel of the animal.

In the United States, in lieu of the camel, we employ the burro and the mule, as best adapted to mountainous travel, and when in numbers, instead of using the word caravan, we employ the words pack train.

As the burro in its travel, by natural instinct, follows in the step of its fellow, the mule being a close relation has inherited this peculiar trait.

Another peculiarity of the mule is its attachment for the dam or horse kind; all animal nature has a fondness for the mother, and the mule is no exception; the fact is, it shows an unusual degree of attachment and plays no favorites as to sex. Due to this fact man selects the horse, for obvious reasons, as best adapted to lead a train of pack mules.

THE BELL HORSE.

This animal, by preference, should be of medium height or pony built; that is, small in foot, short in step, and quick in action, indicating ability to climb a mountain side without undue fatigue; to qualify this statement the ordinary horse of large conformation is large and flat in foot, a condition that endangers its life when leading a train of pack mules in mountainous country.

The use of the bell, with strap around the neck of the horse, is to teach them that, when the horse may be out of sight, the sound of the bell indicates the horse is in the lead or near by and is content to follow; for this reason a train during travel is kept in close order in the step of its mate, as once out of hearing they commence to bray, much like a child that has lost its mother.

I can recall incidents of this character that were both amusing and almost human in the display of grief in search of their pet.

PACK MULES.

In the selection of pack mules it is important that this class of mule should be suitable for mountainous travel. This type of mule is described in section 128, Manual of Pack Transportation, and as a guide to help in the selection. Section 129 is quoted as the class of mule that is undesirable for pack service.

On the lines of conformation the packer has learned by experience the type of mule that fails in climbing the rugged portions of the Continental Divide, and his critical eye pictures

the flesh condition of that mule in the test of endurance after two or three months' service.

It has often been said by packers or men that lack that loyalty and esprit de corps for the service, "Why should we care; the Government is rich and the farmers in Missouri have mules to sell," forgetting the fact that the train may be a thousand miles or more from Missouri; that the officer in command is depending on the strength and service of the train to carry his supplies to enable him to accomplish his designs.

So that it may be said the officer and pack master are burdened with two kinds of animals—the unserviceable mule and the undesirable packer.

PACKSADDLES.

There are to-day two classes of packsaddles in especial use, the crosstree and the aparejo. These are described in sections 1 and 2 of the manual. A view of the packsaddle or crosstree is shown in figure 54, page 108.

The first is a product of European countries, and, inasmuch as the saddle proper is made of wood, it is not a difficult problem to secure suitable timber in the mountainous sections. In its make-up we may best explain its construction by stating that if we take the Cavalry saddle and remove the cantle and pommel and in lieu of these apply cross sections of wood shaped like the letter "X" and provide a breast strap and breeching we will have a better crosstree than can be purchased in the markets of to-day. Necessarily, to protect the animal from its burden, a saddle pad of suitable dimensions is employed to protect the body of the animal from abrasions of its burden.

In the case of the aparejo (see fig. 1, p. 14 of the Manual of Pack Transportation), this form of packsaddle is supposed to be of Arabian origin, where plains and deserts are more in evidence, and, roughly speaking, is composed of two rectangular sections of leather, sewed all around and across the middle. This gives two panels for padding, and to enable the individual a hole is cut out in the center of each panel on the section that comes in contact with the body of the animal.

In lieu of a breeching a broad band of leather supplies its place, termed the crupper, and in lieu of the breast strap a broad cincha is employed; this encircles the aparejo and body of the animal so as to keep the saddle from slipping backward and the adjustment of the crupper from slipping forward.

With this form of packsaddle animals have climbed and crossed the most rugged portions of the Continental Divide in the United States and Mexico. Its adoption by our Government is due to years of experience as the one best type, suited to carry all manner of supplies for troops in the field.

The aparejo, however, has undergone a gradual evolution, and to-day, when made of suitable material, has no superior. (See sec. 130, p. 167.) Unfortunately, the grasping avarice of man for the dollar substitutes poor material, especially so for the Government, which is looked upon as the fatted sheep to fleece.

ROPES, PACKS, AND CARGO.

We have in pack-train service three classes of rope designated the lair, sling, and lash rope, and four classes of canvas, known as the pack cover, cargo, rigging, and feed covers, having special uses in the organization of a pack train. (See sec. 130, pars. 9-15, inclusive, pp. 175-176.)

The word pack or bundle, as applied to pack transportation, has reference to commercial packages, and such other articles needed by an army.

These are made up into packages that we term packs, and any number of these, depending on weight, are carried by the pack mule.

As the customary load for a pack mule is rated 250 pounds net, the load is ordinarily divided into two sections, termed side packs, having reference to the two sides of the animal. These packs, such as need it, are wrapped in a section of canvas that we term a pack cover, and to hold the cover securely it is wrapped with a section of rope known as the "lair" rope.

The duty of the packer is to mate these packs according to kind as much as possible in loads of flour, sugar, coffee, beans, rice, bacon, canned goods, and ammunition, and such other packs or bundles ordinarily carried by a company or troop.

To expedite the loading of a pack train these packs are arranged in two parallel lines that we term the cargo. The first duty of the packer is to lay on the ground a line of coiled lash rope, leaving about 10 feet of the end extended; then another line of rope, the coils abutting against those in place with the ends extended, so that if the line of the cargo is north and south, the ends will be east and west.

Preparatory to placing the loads on the respective lash rope, a sling rope is placed on the extended portion of each lash rope;

as the loads are placed in position the sling rope is placed on top of the load and the extended portion of the lash rope is coiled and placed on top of the sling rope and load. When the task is completed the cargo is formed and ready for loading the train. As the pack mules are lined up at rigging and receive their respective aparejo, they are tied to the load assigned them by the caragador; for this purpose the end of the lash rope is secured to the halter of the mule.

This is an important duty, as the caragador must know the full strength of each mule and assign such loading as will not impair its service.

HITCHES.

The best known hitch that has ever been designed by man to secure a load on a pack animal is the diamond hitch. This is described in section 32 of the Manual, pages 61 to 90.

If we take a section of rope and double it, and pull the two ropes apart at center, we form a diamond. In the formation of this hitch, the front and rear rope pulls these two ropes apart on top of the load, hence the name given to this form of hitch; in applying this hitch to a loaded mule, the operation is performed by experts in 30 seconds, and has been done in less time.

The operation of loading a pack train of 50 pack mules, from start to finish, ordinarily takes about 30 minutes, and has been done in less time.

In this work many items must be considered. The fitting of the aparejos to the respective mules, the soundness of their bodies, the gentleness of the train, the selection of the camp ground, the arrangement of the rigging and cargo, and the discipline and expertness of a crew of packers.

FORMATION OF CAMPS.

Pack trains may practically be considered a field unit, and are usually in charge of an officer, who directs the pack master where to park the train; in doing so it is important, when possible, to avoid low and marshy ground, selecting the highest ground for the cargo, then the rigging, and picket line, and the mess kitchen as convenient to water as possible.

When a full cargo of supplies is carried by the train, it is customary to divide the cargo in two sections, about 12 feet apart. As packers work in pairs, this gives opportunity for six pairs, or 12 packers, to be at work, with the pack master assisting where needed; no man is idle in a pack train.

The aparejo, or rigging, is usually placed in the form of a crescent or horseshoe formation, with the ends of the shoe facing the cargo, the latter about 10 paces from the line of rigging.

If a picket line is used, it is stretched in rear of the line of rigging and about 10 paces therefrom. This keeps the pack train in a close-order formation, and hastens the readiness of the train to leave camp at a specified time.

CARRYING CAPACITY OF A PACK TRAIN.

As the carrying strength of a pack mule is rated at 250 pounds net, a train of 50 pack mules will carry 12,500 pounds of supplies.

The commissary of to-day supplies three kinds of rations, known as Nos. 1, 2, and 3. No. 1 is technically known as the haversack or short ration, and is computed at about 3 pounds per man, or 2.935 pounds.

As Nos. 2 and 3 will average about 4 pounds per man, a train will carry rations for one day for 3,125 men, and, at 200 pounds per animal, supplies for 2,500 men.

If we deduct 588 pounds, or one day's allowance of grain for 64 mules and 1 horse, the train will carry rations for 2,978 men, and, at 200 pounds per animal, rations for 2,353 men.

AMMUNITION SUPPLY.

The service ammunition of to-day for the Springfield rifle, caliber .30, is issued by the Ordnance Department in hermetically sealed steel cases, holding 1,200 rounds in bandoleer form, weighing $91\frac{1}{2}$ pounds; that is, 15 pounds to the case and $76\frac{1}{2}$ pounds for the bandoleers and ammunition.

Allowing a load of two cases to the mule, a weight of 183 pounds, or 100 cases to the train, the train will supply the firing line with 120,000 rounds; and with three cases to the mule, a load of $274\frac{1}{2}$ pounds, the train will supply the firing line with 180,000 rounds of ammunition, and 10 trains engaged on this duty will supply 1,800,000 rounds to the firing line, and do so on the run at a rate of 6 miles to the hour. A much better mode of supply would be the use of panniers attached to the aparejo. These may be made of canvas or leather, the latter preferred as more enduring. Into the pockets, one on each side, the contents of four cases may be emptied, a supply of 4,800 rounds to the mule or 240,000 rounds to the train, a gain of 120,000 rounds at two cases to the mule, or at three cases to

the mule, a gain of 60,000 rounds to the train. As the system requires time in delivery in extracting the bandoleers, a more rapid supply may be employed by the aid of two boxes, hinged at the top and bottom, the top for filling and the bottom for delivering, as the contents would fall to the ground in the action of a quick-release device.

These boxes may be carried without the aid of sling and lash rope, an important item when delivering ammunition in the zone of fire, especially if packers have the buck fever, when the balls are throwing dust about his feet.

Not an agreeable sensation for a tenderfoot; and as the mule, unlike the packer, has an inquisitive turn, the closer he approaches the firing line the better he likes it. So that it may be said it is up to the packer to face the music.

SELECTION OF PACKERS.

This is explained in section 105 of the manual, as well as the qualifications of the skilled packer in the following section.

Too much stress can not be placed on the selection of men as suitable for pack-train service. It should be remembered that pack trains are not organized for table-lands and roadways; his work commences where the teamster and his wagon can not travel, climbing up and down mountains, crossing swamps, mountain torrents, and fallen timber, pelted by snow and rain while assisting a fallen mule, and with the assistance of a brother packer shoulder its load and pack it to some advantageous point and reload the animal and start him afresh on the trail of its mate is not a picnic and requires manhood of the best type, as well as the type of mule, the partner in his travels.

It should be remembered that mules learn to know and recognize by sight and sense of smell each member of the pack train, and look to them for kind treatment and encouragement as well as assistance in crossing bad or dangerous places, so that it may be said the manhood of the personnel vouches for the service of the pack train.

It does not take but a few minutes to line up a pack train, look at the equipment, and size up the personnel, and tell you what service to expect from the train.

ORGANIZATION.

The organization and equipment of a pack train is defined in section 87, page 148, of the manual.

Primarily the word "organization" is a community of individuals on any one enterprise, who through careful consideration of thought along certain lines define rules of action that lead to unity of purpose, conserves time, and eliminates waste.

In applying these rules to any one enterprise or the units of an army, it must have a directing or governing head, who in turn must look to the chiefs of units to perfect the organization of their especial branch, so that from the combined units satisfactory results are obtained.

I may be considered an expert to define certain rules to govern a pack train, but I would not consider that I was a factotum to define the duties of the office of the Quartermaster General.

In other words, it may be taken as an axiom that no man is an expert outside of his special training, that must be obtained by years of practical experience.

In the organization of a pack train the equipment is of the best material and workmanship, and men and animals are taught certain defined duties that tend toward the maintenance of equipments, the care and sound condition of the animals' bodies, and discipline among the personnel to obtain satisfactory service.

Naturally it would be false economy after an expenditure of thousands of dollars to submit the care of a pack train to an ignorant and disorganized personnel or a personnel that may be antagonistic to the packmaster.

In the days of the civilian packer the pack master could enforce and maintain discipline, as it was an easy matter to get rid of an undesirable, and while I have met a few such men, yet, as a body, they were always loyal and true to the service, and never forsook an officer in moments of peril when times were more strenuous on our western border and the Philippines than they are to-day.

In the Quartermaster Corps the great drawback in the service of the pack train has been in the selection of men, which should follow section 107, as well as the qualifications of the skilled packer in the following section, pages 154 and 155 of the manual, and, I may add, in the compensation of the individual, that varies from \$18 to \$45 a month, naturally each private to gain advance in salary is endeavoring to oust the pack master, and a \$10 blind or 10 days in the guardhouse is not conducive to discipline.

As an adequate compensation, the enlisted packer should be allowed \$30 a month, with increase of \$5 for each reenlistment, until \$50 is attained, which should be the maximum for that grade, the cargador and blacksmith starting at \$55, until \$75 is attained, and the sergeant pack master at \$80, until \$100 is reached, the maximum of each to be the highest for that grade.

The cook to be of the same pay as the enlisted packer. Such provision would insure a high grade of personnel for the pack-train service. Naturally promotion should follow on the line of efficiency.

A pack master that understands his duties and is competent to discharge them is a valuable man to the service, and saves to the Government the unnecessary expenditure of hundreds of dollars.

In 1910 I computed the expense of organizing one pack train at approximately \$17,000, and, it may be said, it is not a good proposition to intrust valuable equipment and animals to the care of a shiftless and ignorant personnel.

Possibly it may be considered that on the subject of supply the least to be considered is the animal burden.

Armies of to-day do not fight in the open. Our English cousins in South Africa learned a lesson from the tactics of the Boers, who behind the shelter of a trench or bowlder shot down the officer like a snipe in a ditch, and the great war in Europe to-day is fought with artillery, machine-gun companies, and trench fighting—pick and shovel.

And it may be said as an aid in the quick movement of a machine-gun company and supply of ammunition is the pack mule, and were its use and effectiveness known in the days of our Indian wars Custer may have saved one-half of his regiment from annihilation on the banks and bluffs of the Little Big Horn.

Officers of the Reserve Corps, there is in this hall an American officer on whose shoulders in this great world war the burden of supply for our Army will have to be borne, as well as officers of the corps and you gentlemen as aids in his support in this great crisis.

Gentlemen, I would kindly ask you to arise and join with me in giving three good old-fashioned American yells to Maj. Gen. Henry Granville Sharpe, Quartermaster General of the United States Army.



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